

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

TECH CENTER 1600/2900

JUN 28 2002

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

(PTO-1449)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	NAME	Class	Subclass	Filing Date If Appropriate
<i>CA</i>	A1	5,403,737	04/04/95	Abrahmsen et al.	435	252.2	
<i>CA</i>	A2	5,629,173	05/13/97	Abrahmsen et al.	435	68	
<i>CA</i>	A3	5,316,935	05/31/94	Arnold et al.	435	221	
<i>CA</i>	A4	5,208,158	05/04/93	Bech et al.	435	219	
<i>CA</i>	A5	5,244,791	09/14/93	Estell	435	171	
<i>CA</i>	A6	5,316,941	05/31/94	Estell et al.	435	252.2	
<i>CA</i>	A7	5,955,340	09/21/99	Bott	435	221	

FOREIGN PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	Subclass	TRANSLAT'N
<i>CA</i>	B1	EP 3 328 229 A1	08/16/89	EP	—	—	yes
<i>CA</i>	B2	WO 91/16423	04/18/91	PCT	—	—	yes
<i>CA</i>	B3	WO 96/27671	02/27/96	PCT	—	—	yes
<i>CA</i>	B4	WO 97/37007	10/09/97	PCT	—	—	yes
<i>CA</i>	B5	WO 98/23732	06/04/98	PCT	C1-2N	9/00	yes

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

<i>CA</i>	C1	Abrahmsen et al., "Engineering Subtilisin and Its Substrates for Efficient Ligation of Peptide Bonds in Aqueous Solution," <u>Biochemistry</u> , 30:4151-59 (1991)
<i>CA</i>	C2	Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," <u>Science</u> , 258:307-310 (1992)
<i>CA</i>	C3	Alvear et al., "Inactivation of Chicken Liver Mevalonate 5-Diphosphate Decarboxylase by Sulfhydryl-Directed Reagents: Evidence of a Functional Dithiol," <u>Biochimica et Biophysica Acta</u> , 994:7-11 (1989)
<i>CA</i>	C4	Barbas et al., "A Search for Peptide Ligase: Cosolvent-Mediated Conversion of Proteases to Esterases for Irreversible Synthesis of Peptides," <u>J. Am. Chem. Soc.</u> , 110:5162-66 (1988)
<i>CA</i>	C5	Barbas, et al., "Papain Catalysed Peptide Synthesis: Control of Amidase Activity and the Introduction of Unusual Amino Acids," <u>J. Chem. Soc., Chem. Commun.</u> , 533-34 (1987)
<i>CA</i>	C6	Bech et al., "Significance of Hydrophobic S ₄ -P ₄ Interactions in Subtilisin 309 from <i>Bacillus lentus</i> ," <u>Biochemistry</u> , 32:2847-2852 (1993)
<i>CA</i>	C7	Bell et al., "Kinetic Studies on the Peroxidase Activity of Selenosubtilisin," <u>Biochemistry</u> , 32:3754-3762 (1993)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

TECH CENTER 1600/2000

JUN 28 2002

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

(PTO-1449)

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C8	Berglund et al., "Altering the Specificity of Subtilisin <i>B. Lentus</i> by Combining Site-Directed Mutagenesis and Chemical Modification," <u>Bioorganic & Mechanical Chemistry Letters</u> , 6:2507-2512 (1996)
C9	Berglund et al., "Chemical Modification of Cysteine Mutants of Subtilisin <i>Bacillus Lentus</i> Can Create Better Catalysts Than The Wild-Type Enzyme," <u>J. Am. Chem. Soc.</u> , 119:5265-5266 (1997)
C10	Betzel et al., "Crystal Structure of the Alkaline Proteinase Savinase TM from <i>Bacillus lentus</i> at 1.4 Å Resolution," <u>J. Mol. Biol.</u> , 223:427-445(1992)
C11	Bodwell et al., "Sulphydryl-Modifying Reagents Reversibly Inhibit Binding of Glucocorticoid-Receptor Complexes to DNA-Cellulose," <u>Biochemistry</u> , 23:1392-1398 (1984)
C12	Bonneau et al., "Alteration of the Specificity of Subtilisin BPN' by Site-Directed Mutagenesis in its S ₁ and S ₁ ' Binding Sites," <u>J. Am. Chem. Soc.</u> , 113:1026-30 (1991)
C13	Brocklehurst, "Specific Covalent Modification of Thiols: Applications in the Study of Enzymes and Other Biomolecules," <u>Int. J. Biochem.</u> , 10:259-274 (1979)
C14	Bruice et al., "Novel Alkyl Alkanethiolsulfonate Sulphydryl Reagents. Modification of Derivatives of L-Cysteine," <u>Journal of Protein Chemistry</u> , 1:47-58 (1982)
C15	Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," <u>J. Agric. Food Chem.</u> , 40:356-362 (1992)
C16	Chen et al., "Incorporation of Unnatural Amino Acid Derivatives into a Peptide Bond via an Oxime Ester Catalysed By Papain or Lipase," <u>Chem. Commun.</u> , 165-66 (1996)
C17	Chen et al., "Kinetically Controlled Peptide Bond Formation in Anhydrous Alcohol Catalyzed by the Industrial Protease Alcalase," <u>J. Org. Chem.</u> , 57:6960-65 (1992)
C18	Chen et al., "Probing the S-1' Subsite Selectivity of an Industrial Alkaline Protease in Anhydrous t-Butanol," <u>Bioorganic & Medicinal Chemistry Letters</u> , 3(4):727-33 (1993)
C19	Daly et al., "Formation of Mixed Disulfide Adducts at Cysteine-281 of the Lactose Repressor Protein Affects Operator and Inducer Binding Parameters," <u>Biochemistry</u> , 25:5468-5474 (1986)
C20	Davies et al., "A Semisynthetic Metalloenzyme Based on a Protein Cavity That Catalyzes the Enantioselective Hydrolysis of Ester and Amide Substrates," <u>J. Am. Chem. Soc.</u> , 119:11643-11652 (1997)
C21	Davis, B.G., et al., "Glycosyldisulfides: a new class of solution and solid phase glycosyl donors," <u>Chem. Commun</u> , 2001, pp.189-190
C22	Davis, Benjamin G, et al., "The Controlled Glycosylation of a Protein with a Bivalent Glycan: Towards a New Class of Glycoconjugates, Glycodendriproteins," <u>Chem. Commun</u> , 2001, pp. 351-352
C23	DeSantis et al., "Chemical Modifications at a Single Site Can Induce Significant Shifts in the pH Profiles of a Serine Protease," <u>J. Am Chem. Soc.</u> , 120:8582-8586 (1998)
C24	DeSantis, et al., "Probing the altered specificity and catalytic properties of mutant subtilisin chemically modified at position S156C and S166C in the S1 pocket," <u>Bioorganic And Medicinal Chemistry</u> , 7:7, pp. 1381-1387, (1999)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

RECEIVED

JUN 28 2002

TECH CENTER 1600 2900

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

(PFO-1449)

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C25	Di Bello, "Total Synthesis of Proteins by Chemical Methods: The Horse Heart Cytochrome C Example," <u>Gazzetta Chimica Italiana</u> , 126:189-197 (1996)
C26	Dickman, M., et al., "Chemically modified mutants of subtilisin bacillus lentus catalyze transesterification reactions better than wild type," <u>Tetrahedron Asymmetry</u> , (11. Dec. 1998) 9/23 4099-4102, XPO000901276
C27	Dime, DS., "Protein Topology and Ion Channel Research," Toronto Research Chemicals, Inc. (catalog date unknown)
C28	Ekberg et al., "Enzymatic Coupling of Two D-Amino Acid Residues in Aqueous Media," <u>Tetrahedron Letters</u> , 30(5):583-86 (1989)
C29	Engler et al., "Critical Functional Requirement for the Guanidinium Group of the Arginine 41 Side Chain of Human Epidermal Growth Factor as Revealed by Mutagenic Inactivation and Chemical Reactivation," <u>The Journal of Biological Chemistry</u> , 267:2274-2281 (1992)
C30	Frillingos et al., "Cysteine-Scanning Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of <i>Escherichia coli</i> ," <u>Biochemistry</u> , 36:269-273 (1997)
C31	Gloss et al., "Examining the Structural and Chemical Flexibility of the Active Site Base, Lys-258, of <i>Escherichia coli</i> Aspartate Aminotransferase by Replacement with Unnatural Amino Acids," <u>Biochemistry</u> , 34:12323-12332 (1995)
C32	Graycar et al., "Altering the Proteolytic Activity of Subtilisin through Protein Engineering," <u>Annals New York Academy of Science</u> , 672:71-79 (1992)
C33	Gron et al., "A Highly Active and Oxidation-Resistant Subtilisin-Like Enzyme Produced by a Combination of Site-Directed Mutagenesis and Chemical Modification," <u>Eur. J. Biochem.</u> , 194:897-901 (1990)
C34	Gron et al., "Extensive Comparison of the Substrate Preferences of Two Subtilisins As Determined with Peptide Substrates Which Are Based on the Principle of Intramolecular Quenching," <u>Biochemistry</u> , 31(26):6011-18 (1992)
C35	Hempel et al., "Selective Chemical Modification of Human Liver Aldehyde Dehydrogenases E_1 and E_2 by Iodoacetamide," <u>The Journal of Biological Chemistry</u> , 256:10889-10896 (1981)
C36	Hilvert et al., "A Highly Active Thermophilic Semisynthetic Flavoenzyme," <u>J. Am. Chem. Soc.</u> , 110:682-689 (1988)
C37	Hilvert et al., "New Semisynthetic Flavoenzyme Based on a Tetrameric Portein Template, Glyceraldehyde-3-Phosphate Dehydrogenase," <u>J. Am. Chem. Soc.</u> , 107:5805-5806 (1985)
C38	House et al., " ^1H NMR Spectroscopic Studies of Selenosubtilisin," <u>Biochemistry</u> , 32:3468-3473 (1993)
C39	Huang et al., "Improving the Activity of Immobilized Subtilisin by Site-Specific Attachment to Surfaces," <u>Anal. Chem.</u> , 69:4601-4607 (1997)
C40	Jonsson et al., "Temperature Effects on Protease Catalyzed Acyl Transfer Reactions in Organic Media," <u>Journal of Molecular Catalysis B: Enzymatic</u> , 2:43-51 (1996)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

TECH CENTER 1600/2900

JUN 28 2002

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)



(PTO-1449)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C41	Kaiser, "Catalytic Activity of Enzymes Altered at Their Active Sites," <u>Agnew. Chem. Int. Ed. Engl.</u> , 27:913-922 (1988)
C42	Kanaya et al., "Role of Cysteine Residues in Ribonuclease H from <i>Escherichia coli</i> ," <u>Biochem. J.</u> , 271:59-66 (1990)
C43	Kato et al., "First Stereoselective Synthesis of D-Amino Acid N-Alkyl Amide Catalyzed by D-Aminopeptidase," <u>Tetrahedron</u> , 45(18) 5743-54 (1989)
C44	Kawase et al., "Effect of Chemical Modification of Tyrosine Residues on Activities of Bacterial Lipase," <u>Journal of Fermentation and Bioengineering</u> , 72:317-319 (1991)
C45	Kawashiro et al., "Effect of Ester Moiety of Substrates on Enantioselectivity of Protease Catalysis in Organic Media," <u>Biochemistry Letters</u> , 18(12):1381-86 (1996) <i>Molecular Technology</i>
C46	Kenyon et al., "Novel Sulfhydryl Reagents," <u>Methods Enzymol.</u> , 47:407-430 (1977)
C47	Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses," <u>Analytical Biochemistry</u> , 180:231-236 (1989)
C48	Kluger et al., "Amino Group Reactions of the Sulfhydryl Reagent Methyl Methanesulfonylthioate. Inactivation of D-3-hydroxybutyrate Dehydrogenase and Reaction with Amines in Water," <u>Can. J. Biochem.</u> , 58:629-632 (1980)
C49	Kokubo et al., "Flavohemoglobin: A Semisynthetic Hydroxylase Acting in the Absence of Reductase," <u>J. Am. Chem. Soc.</u> , 109:606-607 (1987)
C50	Konigsberg, "Reduction of Disulfide Bonds in Proteins with Dithiothreitol," <u>Methods in Enzymology</u> , 25:185-188 (1972)
C51	Kuang et al., "Enantioselective Reductive Amination of α -Amino Acids by a Pyridoxamine Cofactor in A Protein Cavity," <u>J. Am. Chem. Soc.</u> , 118:10702-10706 (1996)
C52	Lewis et al., "Determination of Interactive Thiol Ionizations in Bovine Serum Albumin, Glutathione, and Other Thiols by Potentiometric Difference Titration," <u>Biochemistry</u> , 19:6129-6137 (1980)
C53	Liu et al., "Site-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," <u>Biochemistry</u> , 35:11865-11873 (1996)
C54	Margolin et al., "Incorporation of D-Amino Acids into Peptides via-Enzymatic Condensation in Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:7885-87 (1987)
C55	Margolin et al., "Peptide Synthesis Catalyzed by Lipases in Anhydrous Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:3802-04 (1987)
C56	Miller et al., "Peroxide Modification of Monoalkylated Glutathione Reductase," <u>The Journal of Biological Chemistry</u> , 266:19342-19360 (1991)
C57	Morea et al., "Exploitation of Subtilisin BPN as Catalyst for the Synthesis of Peptides Containing Noncoded Amino Acids, Peptide Mimetics and Peptides Conjugates," <u>J. Am. Chem. Soc.</u> , 119:3942-47 (1997)
C58	Moriyama et al., " α -Chymotrypsin as the Catalyst for Peptide Synthesis," <u>Biochem. J.</u> , 163:531-42 (1977)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

TECH CENTER 1600/2900

JUN 28 2002

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)



(210-1449)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C59	Nakatsuka et al., "Peptide Segment Coupling Catalyzed by the Semisynthetic Enzyme Thiolsubtilisin," <u>J. Am. Chem. Soc.</u> , 109:3808-10 (1987)
C60	Nakayama et al., "Chemical Modification of Cysteinyl, Lysyl and Histidyl Residues of Mouse Liver 17 β -Hydroxysteroid Dehydrogenase," <u>Biochimica et Biophysica Acta</u> , 1120:144-150 (1992)
C61	Neet, K.E. and Koshland, D.E., "The Conversion of Serine at the Active Site of Subtilisin to Cysteine: A 'Chemical Mutation,'" <u>Proc. Nat. Acad. Sci. USA</u> , 56(5):1606-1611. (1966)
C62	Nishimura et al., "Reversible Modification of the Sulfhydryl Groups of <i>Escherichia coli</i> Succinic Thiokinase with Methanethiolating Reagents, 5,5'-Dithio-bis(2-Nitrobenzoic Acid), p-Hydroxymercuribenzoate, and Ethylmercurithiosalicylate," <u>Archives of Biochemistry and Biophysics</u> , 170:461-467 (1975)
C63	O'Connor et al., "Probing an Acyl Enzyme of Selenosubtilisin by Raman Spectroscopy," <u>J. Am. Chem. Soc.</u> , 118:239-240 (1996)
C64	Pardo et al., "Cysteine 532 and Cystein 545 Are the N-Ethylmaleimide-Reactive Residues of the <i>Neurospora</i> Plasma Membrane H ⁺ -ATPase," <u>The Journal of Biological Chemistry</u> , 264:9373-9379 (1989)
C65	Peterson et al., "Nonessential Active Site Residues Modulate Selenosubtilisin's Kinetic Mechanism," <u>Biochemistry</u> , 34:6616-6620 (1995)
C66	Peterson et al., "Selenosubtilisin's Peroxidase Activity Does Not Require an Intact Oxyanion Hole," <u>Tetrahedron</u> , 53:12311-12317 (1997)
C67	Planas et al., "Reengineering the Catalytic Lysine of Aspartate Aminotransferase by Chemical Elaboration of a Genetically Introduced Cysteine," <u>Biochemistry</u> , 30:8268-8276 (1991)
C68	Plettner, E., et al., "Modulation of Esterase and Amidase Activity of Subtilisin Bacillus Lentus by Chemical Modification of Cysteine Mutants," <u>Journal of the American Chemical Society</u> , (2 Jun. 1999) 121/21, 4977-4981, XP0000891274
C69	Plettner, Erika et al., "A Combination Approach to Chemical Modification of Subtilisin Bacillus Lentus," <u>Bioorganic & Medicinal Chemistry Letters</u> (Sept. 8, 1998) Vol. 8, No. 17, pp. 2291-2296, XP0004138220 (Peterson)
C70	Polgar et al., "A New Enzyme Containing a Synthetically Formed Active Site. Thiol-Subtilisin," <u>Journal of American Chemical Society</u> , 88:3153-3154 (1966)
C71	Polgar, "Spectrophotometric Determination of Mercaptide Ion, an Activated Form of SH-Group in Thiol Enzymes," <u>FEBS Letters</u> , 38:187-190 (1974)
C72	Presenting Our Line of MTS Compounds," Toronto Research Chemicals Inc. (catalog, date unknown)
C73	Radziejewski et al., "Catalysis of N-Alkyl-1,4-Dihydronicotinamide Oxidation by a Flavopapain: Rapid Reaction in All Catalytic Steps," <u>J. Am. Chem. Soc.</u> , 107:3352-3354 (1985)
C74	Raia et al., "Activation of <i>Sulfolobus Solfataricus</i> Alcohol Dehydrogenase by Modification of Cysteine Residue 38 with Iodoacetic Acid," <u>Biochemistry</u> , 35:638-647 (1996)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

TECH CENTER 1600/2900

JUN 28 2002

RECEIVED

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C75	Ramachandran et al., "Stabilization of Barstar by Chemical Modification of the Buried Cysteines," <u>Biochemistry</u> , 35:8776-8785 (1996)
C76	Roberts et al., "Reactivity of Small Thiolate Anions and Cysteine-25 in Papain Toward Methyl Methanethiosulfonate," <u>Biochemistry</u> , 25:5595-5601 (1986)
C77	Rokita et al., "Synthesis and Characterization of a New Semisynthetic Enzyme, Flavolysozyme," <u>J. Am. Chem. Soc.</u> , 108:4984-4987 (1986)
C78	Sears et al., "Engineering Enzymes for Bioorganic Synthesis. Peptide Bond Formation," <u>Biotechnol. Prog.</u> , 12:423-33 (1996)
C79	Sears et al., "Engineering Subtilisin for Peptide Coupling: Studies on the Effects of Counterions and Site-Specific Modifications on the Stability and Specificity of the Enzyme," <u>J. Am. Chem. Soc.</u> , 116:6521-30 (1994)
C80	Siddiqui et al., "Arthrobacter D-Xylose Isomerase: Chemical Modification of Carboxy Groups and Protein Engineering Of pH Optimum," <u>Biochem. J.</u> , 295:685-691 (1993)
C81	Smith et al., "An Engineered Change in Substrate Specificity of Ribulosebisphosphate Carboxylase/Oxygenase," <u>The Journal of Biological Chemistry</u> , 265:1243-1245 (1990)
C82	Smith et al., "Chemical Modification of Active Site Residues in γ -Glutamyl Transpeptidase," <u>The Journal of Biological Chemistry</u> , 270:12476-12480 (1995)
C83	Smith et al., "Nonessentiality of the Active Sulfhydryl Group of Rabbit Muscle Creatine Kinase," <u>The Journal of Biological Chemistry</u> , 249:3317-3318 (1974)
C84	Smith et al., "Restoration of Activity to Catalytically Deficient Mutants of Ribulosebisphosphate Carboxylase/Oxygenase by Aminoethylation," <u>The Journal of Biological Chemistry</u> , 263:4921-4925 (1988)
C85	Smith et al., "Simple Alkanethiol Groups for Temporary Blocking of Sulfhydryl Groups of Enzymes," <u>Biochemistry</u> , 14:766-771 (1975)
C86	Smith et al., "Subtle Alteration of the Active Site of Ribulose Bisphosphate Carboxylase/Oxygenase by Concerted Site-Directed Mutagenesis and Chemical Modification," <u>Biochemical and Biophysical Research Communications</u> , 152:579-584 (1988)
C87	So et al., "Lipase-Catalyzed Synthesis of Peptides Containing D-Amino Acid," <u>Enzyme Microb. Technol.</u> , 23:211-15 (1998)
C88	Soper et al., "Effects of Substrates on the Selective Modification of the Cysteiny Residues of D-Aminio Acid Transaminase," <u>The Journal of Biological Chemistry</u> , 254:10901-10905 (1979)
C89	Spura, A., et al., "Probing the Agonist Domain of the Nicotinic Acetylcholine Receptor by Cysteine Scanning Mutagenesis Reveals Residues in Proximity to the alpha-Bungarotoxin Binding Site," <u>Biochemistry</u> , 38:16, pp. 4912-4921, (20 April 1999)
C90	Stauffer et al., "Electrostatic Potential of the Acetylcholine Binding sites in the Nicotinic Receptor Probed by Reactions of Binding-Site Cysteines with Charged Methanethiosulfonates," <u>Biochemistry</u> , 33:6840-6849 (1994)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

TECH CENTER 1600/2900

JUN 28 2002

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

JUN 24 2002

(PTO-1449)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C91	Stepanov, "Proteinases as Catalysts in Peptide Synthesis," <u>Pure & Appl. Chem.</u> , 68(6):1335-39 (1996)
C92	Stewart et al., "Catalytic Oxidation of Dithiols by a Semisynthetic Enzyme," <u>J. Am. Chem. Soc.</u> , 108:3480-3483 (1986)
C93	Suckling et al., "Carbon-Carbon Bond Formation Mediated by Papain Chemically Modified by Thiazolium Salts," <u>Bioorganic & Medicinal Chemistry Letters</u> , 3:531-534 (1993)
C94	Svensson et al., "Mapping the Folding Intermediate of Human Carbonic Anhydrase II. Probing Substructure by Chemical Reactivity and Spin and Fluorescence Labelling of Engineered Cysteine Residues," <u>Biochemistry</u> , 34:8606-8620 (1995)
C95	Valenzuela et al., "Kinetic Properties of Succinylated and Ethylenediamine-Amidated δ -Chymotrypsins," <u>Biochim. Biophys. Acta</u> , 250:538-548 (1971)
C96	Wang et al., "Enzymes in Organic Synthesis: use of Subtilisin and a Highly Stable Mutant Derived from Ultple Site-Specific Mutations," <u>J. Am. Chem. Soc.</u> , 112:945-53 (1990)
C97	Watanabe, et al., "A Unique Enzyme from <i>Saccharothrix</i> sp. Catalyzing D-Amino Acid Transfer," <u>Biochimica et Biophysica Acta</u> , 1337:40-46 (1997)
C98	West et al., "Enzyme-catalysed Synthesis of Peptides Containing D-Amino Acids, <u>J. Chem. Soc. Chem. Commun.</u> , pp 417-18 (1986)
C99	West et al., "Enzyme-Catalyzed Irreversible Formation of Peptides Containing D-Amino Acids," <u>J. Org. Chem.</u> , 51:2728-35 (1986)
C100	West et al., "Enzymes as Synthetic Catalysts: Mechanistic and Active-Site Considerations of Natural and Modified Chymotrypsin," <u>J. Am. Chem. Soc.</u> , 112:5313-5320 (1990)
C101	West et al., "Modification of Proteases to Esterases for Peptide Synthesis: Methylchymotrypsin," <u>J. Am. Chem. Soc.</u> , 110:3709-10 (1988)
C102	White et al., "Sequential Site-Directed Mutagenesis and Chemical Modification to Convert the Active Site Arginine 292 Of Aspartate Aminotransferase to Homoarginine," <u>Journal of the American Chemical Society</u> , 114:292-293 (1992)
C103	Worku et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis of 5'-Nucleotidase," <u>FEBS Letter</u> , 167:235-240 (1984)
C104	Wu et al., "Conversion of a Protease into an Acyl Transferase: Selenolsubtilisin," <u>J. Am. Chem. Soc.</u> , 111:4514-4515 (1989)
C105	Wynn et al., "Chemical Modification of Protein Thiols: Formation of Mixed Disulfides," <u>Methods in Enzymology</u> , 251:351-356 (1995)
C106	Wynn et al., "Comparison of Straight Chain and Cyclic Unnatural Amino Acids Embedded in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 6:1621-1626 (1997)
C107	Wynn et al., "Mobile Unnatural Amino Acid Side Chains in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 5:1026-1031 (1996)
C108	Wynn et al., "Unnatural Amino Acid Packing Mutants of <i>Escherichia Coli</i> Thioredoxin Produced by Combined Mutagenesis/Chemical Modification Techniques," <u>Protein Science</u> , 2:395-403 (1993)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

23623-7048

SERIAL NO.

09/556,466

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

APPLICANT

Davis et al.

FILING DATE

April 21, 2000

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C109	Xu et al., "Amino Acids Lining the Channel of the γ -Amino butyric Acid Type A Receptor Identified by Cysteine Substitution," <u>The Journal of Biological Chemistry</u> , 268:21505-21508 (1993)
C110	Zhang et al., "Protease-catalyzed Small Peptide Synthesis in Organic Media, <u>Enzyme Microb. Technol.</u> , 19:538-44 (1996)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).